

Personality as Risk and Resilience in Physical Health

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ABSTRACT—*Research on the association between personality characteristics and subsequent physical health has produced several consistent findings and identified other tentative relationships. Chronic anger/hostility and neuroticism/negative affectivity are the best established personality risk factors for poor health. Optimism, social dominance, and other traits also appear to influence risk. Several mechanisms have been identified as possibly underlying these effects, but few have been evaluated definitively. Future research may be well served by incorporation of concepts and methods from current personality research.*

KEYWORDS—*personality and health; psychosomatics; stress*

The fascinating notion that personality influences physical health lies at the heart of several fields. Thirty years ago this hypothesis was central in the emergence of health psychology and behavioral medicine, as it was previously for psychosomatic medicine. Studies in which personality traits predicted health outcomes such as longevity and the onset of serious illness also contributed to the resurgence of personality research in recent decades, as those studies addressed the criticism that personality variables have limited predictive utility.

Suggestions that personality influences disease appear over centuries of medical writing (Smith & Gallo, 2001). Yet, the view that connections between “mind and body” are more fiction than fact is prominent in the recent history of medicine, as when an editor of the *New England Journal of Medicine* described the hypothesis that personality and related psychological factors influence the development of medical disease as “folklore” (Angell, 1985). A growing body of research has challenged such skepticism. Yet, methodological and conceptual issues often limit the kinds of conclusions that can be drawn, thus creating an agenda for future research.

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TRAITS LINKED TO HEALTH

Dozens of purportedly distinct personality characteristics have been studied as influences on health. The following review summarizes the most compelling evidence.

Beyond Type A: Hostility and Dominance

The groundbreaking work of M. Friedman and Rosenman (1959) on Type A behavior and coronary heart disease (CHD) is perhaps the most well-known example of the personality–health hypothesis. Two decades of research following their description of the Type A behavior pattern (i.e., competitiveness, achievement striving, impatience, hostility, excessive job involvement, and emphatic speech) generally supported its role as a risk factor. Several failures to replicate later challenged this conclusion, even though the literature as a whole demonstrated an association. The failures to replicate led researchers to examine individual elements within the multifaceted Type A construct, as inconsistent associations between the pattern and CHD might indicate that only some components influenced health. Hostility soon emerged as the most unhealthy Type A characteristic. Although negative findings have also appeared in this literature, many subsequent studies have supported an association of individual differences in the tendency to experience anger, cynical or suspicious beliefs, and antagonistic interpersonal behavior with asymptomatic atherosclerosis, the incidence of CHD, and mortality from cardiovascular and other causes (Smith, Glazer, Ruiz, & Gallo, 2004).

Other studies indicate another unhealthy aspect of the Type A pattern. A socially dominant style including loud, rapid, and emphatic speech and a tendency to “cut off” and “talk over” others during social interaction is associated with CHD risk (Houston, Chesney, Black, Cates, & Hecker, 1992). Other prospective studies have supported an association between dominance and subsequent health (cf. Smith, Gallo, & Ruiz, 2003), as do the results of nonhuman primate models of atherosclerosis (Kaplan & Manuck, 1998).

Negative Affectivity, Neuroticism, and Risk

Individual differences in the experience of negative emotions (e.g., anxiety, sadness) have long been suspected as contributing

to poor health. This trait is represented in major personality taxonomies, commonly labeled neuroticism or negative affectivity. An early and influential review concluded that this broad dimension conferred vulnerability to disease (H.S. Friedman & Booth-Kewley, 1987). However, critical responses to the review's conclusions suggested that this effect may have been overestimated through the inclusion of studies relying on health-outcome measures that combined illness behavior (e.g., somatic complaints) and actual illness (e.g., diagnosed diseases or mortality). As a result, the apparent association between neuroticism and subsequent disease might have reflected—at least in part—an association between this trait and somatic complaints rather than objectively defined disease. However, subsequent well-designed prospective studies have consistently supported the prior conclusion (Suls & Bunde, 2005); neuroticism and negative affectivity are associated with reduced longevity and increased incidence of objectively diagnosed serious illness.

Personality as Resilience: Optimism and Conscientiousness

The tendency to hold optimistic—as opposed to pessimistic or even hopeless—beliefs about the future has been found to be associated with better health in several prospective studies. These effects include lower incidence of CHD (Kubzanky, Sparrow, Vokonas, & Kawachi, 2001), better prognosis following heart surgery (Scheier et al., 1999), and greater longevity (Giltay, Kamphuis, Kalmijin, Zitman, & Kromhout, 2006). Previous research has suggested that some of the apparent association between optimism and health could actually involve shared variance with neuroticism and the related tendency toward excessive somatic complaints. However, recent studies support a prospective association with objective health outcomes. In some studies these effects have been independent of measures of negative affectivity or neuroticism, although in others it is unclear if the possible overlap between these traits and optimism could contribute to observed associations with objective health outcomes. Conscientiousness has been found to predict longevity, even when this trait is measured during childhood (H.S. Friedman et al., 1995). Among patients with chronic medical illness, conscientiousness is associated with longer survival (Christensen et al., 2002).

CURRENT ISSUES

Several issues have complicated efforts to translate the hypothesis that personality influences health into testable forms. These considerations are important in the critical evaluation of existing research.

Assessing Health, Measuring Personality, and Testing Associations

Burgeoning interest in personality and health research led to the use of a variety of methodological approaches. The most

informative studies use unambiguous outcomes (e.g., mortality, objectively diagnosed disease) and prospective designs. Prospective designs reduce the likelihood that associations reflect the consequences of disease rather than potential causes. A concurrent association between serious illness and negative affect could reflect psychological reactions to disease rather than contributions to its emergence in the first place. Developments in medical imaging have created opportunities for more informative cross-sectional designs by quantifying disease states that are not yet apparent. Through ultrasound and computed tomography procedures, serious but asymptomatic disease (e.g., carotid artery plaque, coronary artery calcification) can be measured in otherwise healthy individuals. In such studies, associations between psychological variables and disease are less likely to reflect consequences of disease than they are in designs comparing individuals with and without clinically apparent conditions. Nonetheless, prospective designs provide the clearest information.

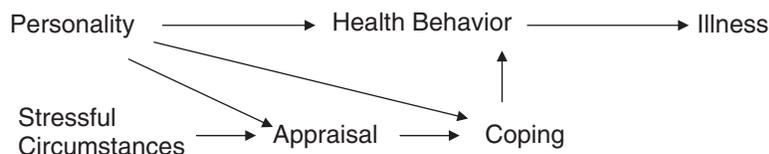
In quantifying physical health, outcomes such as mortality and objectively diagnosed disease avoid ambiguities associated with symptom reports, self-ratings of health, or utilization of health care. These latter indicators involve illness behavior—things people do when sick—rather than actual disease. Importantly, illness behavior is sometimes excessive, as when somatic complaints are extreme for a given level of disease severity, and sometimes less extreme than expected, as in stoicism or denial. Somatic complaints, self-ratings of health and disability, and utilization of health care are important outcomes in their own right. However, they are ambiguous because associations between personality and actual disease are difficult to distinguish from those involving only illness behavior.

Personality measures used in this area have also been problematic. Scales are often developed for individual studies, with minimal attention to psychometric concerns (e.g., scale structure, reliability, validity). Evidence of construct validity is often lacking. For example, different scales with similar labels might not actually assess the same trait, and scales with distinct names may actually assess a single characteristic. This has unfortunate implications for a cumulative science of personality and health; sometimes there is little evidence that intended constructs—rather than other traits inadvertently assessed—are involved in an observed association.

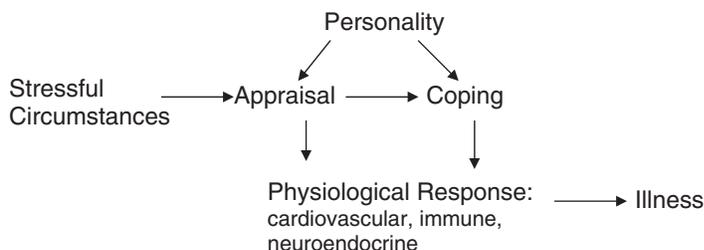
Associations Are Not Explanations: Evaluating Mechanisms

Associations between personality and subsequent health raise the question of mechanisms underlying these effects (see Fig. 1). *Health behavior models* suggest that personality traits are associated with health habits, such as smoking or imprudent diet. These habits, in turn, could mediate associations between personality and health. This effect of personality could be consistent over time and across situations, or personality could moderate

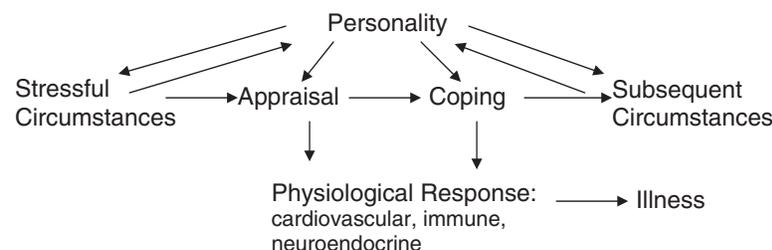
Health Behavior Model



Interactional Stress Moderation Model



Transactional Stress Moderation Model



Constitutional Predisposition Model

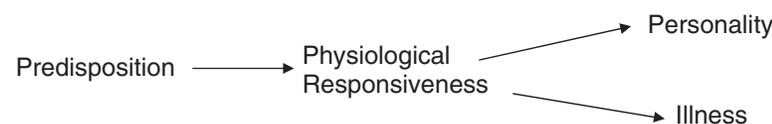


Fig. 1. Models of mechanisms linking personality and health. In the *health behavior model*, personality traits influence health behavior (e.g., smoking, exercise, sleep) or changes in health behavior in response to stressful life circumstances or events. In the *interactional stress moderation model*, personality factors influence appraisal and coping in response to stressful circumstances, which in turn influence physiological responses contributing to illness. The *transactional stress moderation model* extends the interactional model by including the bidirectional effect of personality on exposure to stressful life circumstances and the availability of stress-reducing resources. In the *constitutional predisposition model*, underlying genetic or other psychobiologic factors influence both personality characteristics and the development of illness.

the extent to which health behaviors (e.g., exercise, eating) change in response to stress. Hostility is associated with a variety of negative health behaviors. Yet, its association with subsequent morbidity and mortality generally remains significant when measures of health behavior are controlled (Smith et al., 2004). Conscientiousness is associated with prudent health behavior (Bogg & Roberts, 2004), but there is evidence that it affects subsequent health independently of this mechanism (H.S. Friedman et al., 1995)

Interactional stress moderation models suggest that personality influences both appraisals of potentially stressful circumstances and coping responses. Appraisals and coping, in turn, alter physiological processes involved in disease etiology. That is, personality moderates physiological responses to stressors in such a way as to influence the likelihood of subsequent disease. Hostile persons generally respond to social stressors with larger physiological reactions (i.e., increases in heart rate and blood pressure; release of catecholamines and cortisol) than those of

their more agreeable counterparts, and they display heightened inflammatory activity (Smith et al., 2004). Assertion of dominance during social interaction consistently evokes heightened blood pressure and heart rate (Smith et al., 2003). Chronic negative emotions have been associated with suppressed immune functioning, heightened inflammation, and alterations in autonomic functioning, and optimism is associated with better immune functioning and lower ambulatory blood pressure (Smith & Gallo, 2001).

The *transactional stress moderation model* posits similar pathways but suggests that personality also influences exposure to stressful circumstances. Through decisions to enter or avoid situations, unintentional evocation of responses from other persons, and intentional impacts on others, personality characteristics can alter the frequency, severity, and duration of stressful circumstances (e.g., interpersonal conflict), as well as the availability of stress-reducing resources (e.g., social support). The physiological effects of varying levels of stress exposure could contribute to the effects of personality on health. Hostility and neuroticism have both been linked extensively to increased exposure to interpersonal stressors and reduced levels of social support.

Constitutional predisposition models suggest that underlying genetic or constitutional factors (e.g., temperament, psychological responsiveness, etc.) influence social behavior, emotional traits, and other indicators of personality, as well as pathophysiological processes in disease development. In this view, personality and disease are causally unrelated co-effects of an underlying third variable. For example, trait anger, cynicism, and aggressiveness show significant heritability, and molecular-genetic studies have identified possible candidate genes, suggesting that an underlying constitutional factor could influence the expression of hostility and contribute to disease risk (Smith et al., 2004).

To date, tests of these mechanisms are largely preliminary. Associations between personality and mechanisms or between mechanisms and health have been the main focus. Few studies include more complete mediational tests. Given the common assessment of health behavior in epidemiological research, there have been more mediational tests of this mechanism than of the stress-moderational or constitutional models. Generally, results indicate that health behavior does not provide a complete explanation of associations between personality and health, although some studies support this model.

CONCLUSIONS AND FUTURE DIRECTIONS

Consistent evidence from well-controlled prospective studies indicates that neuroticism/negative affectivity and anger/hostility are associated with important health outcomes. Smaller literatures suggest similar effects for dominance and optimism, and several other traits (e.g., conscientiousness) have received at least some support. It is difficult to reconcile these robust

effects with the view that the personality–health hypothesis represents “folklore.” Indeed, studies of personality and health may be an essential component of a comprehensive understanding of health and disease.

Plausible mechanisms that potentially underlie these associations have been described, but the literature includes very few compelling tests of these mediational hypotheses. The identification of such mechanisms is essential for the wider acceptance in the biomedical community of personality as an influence on health. That is, the elucidation of mechanisms will be important not only for the advance of basic science and its translation into risk-reducing intervention; the issue of mechanisms is also important for the credibility of the general perspective that personality can influence health. Yet, isolation of one or even a small number of critical mechanisms may be an unrealistic goal. Many of the diseases studied in this research area have complex etiologies that change across stages within their potentially decades-long development and course. The importance of personality traits in such evolving health outcomes may reflect the fact that they are related to multiple, potentially complex and changing mechanisms over long periods of time. Hence, the traditional medical approach in which individual risk factors are related to a specific aspect of disease etiology through a precisely defined mechanism may be a poor model for the ways in which long-standing and far-reaching personality traits influence the development and course of disease over a span of many years. Instead, personality may be related to “bundled” mechanisms involving multiple health behaviors, exposure to several sources of environmental stress, and a variety of interrelated psychophysiological influences on health.

Three major viewpoints in personality psychology have made important contributions to research in this area and are essential in its future (Smith & Gallo, 2001). The predominant trait approach, the Five Factor Model (FFM), may be particularly useful. FFM traits have been used as predictors of health outcomes, but perhaps more importantly this well-established taxonomy can serve as a set of clearly defined personality constructs with well-validated measures (i.e., nomological net) in evaluating, comparing, and contrasting measures and constructs used in health research. In this way, the FFM could bring order to an unwieldy proliferation of constructs and scales and perhaps identify a smaller number of traits that influence health individually or in interactive combinations. The broad traits of the FFM might be seen as posing a threat to the identification of more specific personality influences on health, as when anxiety, anger, and depressive symptoms are subsumed within neuroticism or negative affectivity (Suls & Bunde, 2005). However, versions of the FFM that examine facets within the broader traits can provide such specificity while still maintaining the integrative value of this taxonomy.

The FFM is best suited for describing *which* personality characteristics are associated with health. The social-cognitive

perspective provides valuable concepts and methods for describing *how* individuals come to encounter and respond to situations in ways that ultimately affect their health. Rather than broad and static traits, as in the FFM, social-cognitive approaches include smaller, more dynamic units of cognition, affect, and social behavior that describe personality processes. Optimism is the social-cognitive construct most clearly linked to subsequent health, but this perspective provides a generally applicable set of concepts for explicating psychological mechanisms linking personality with health-relevant processes and outcomes.

Current personality-and-health research is typically conducted separately from research on social-environmental risk factors, such as social support or interpersonal conflict. Parsing risk factors as characteristics either of persons or the social contexts they inhabit poses an impediment to an integrative science of psychosocial risk. A third perspective—the interpersonal approach—is useful in this regard. It assumes that personality and recurring features of the social environment are typically two aspects of a single phenomenon. It includes a structural model of social behavior—the interpersonal circumplex—that conceptualizes social situations and personality through common dimensions (i.e., friendliness versus hostility, dominance versus submissiveness). It also includes an account of reciprocal influences between individuals and social situations. Through these concepts and related measures, the interpersonal approach may facilitate a comprehensive perspective on psychosocial risk factors for physical illness (Smith et al., 2004). Each of these perspectives in current personality psychology can contribute to the ultimate goal of research on personality and health—a scientifically informed approach to identifying, explicating, and reducing psychosocial risk for physical illness.

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